

Global Warming Debate

6.1.6 Outline the arguments surrounding global warming.

Climate Change is Happening & Has Anthropocentric Causes

- Lots of evidence that shows big changes since the 70s (when the human pop. started getting bigger + bigger + an even bigger ↑ in fossil fuel use)

The Atmosphere isn't Warming

- An old argument, put to rest in the 90s

Warming is due to Natural Variation

- The Earth has always gone through natural temp. changes
- IPCC has already said that warming since the 70s has gone outside natural variation.
- Warming is outpacing the natural variation of El Niño + Sunspots.

Amount of Warming is Insignificant

- Questions what is significant & How much will the Earth warm.
- We really don't know how much the Earth will warm.

Benefits will Outweigh the Problems

- Some increase in Plants + Productivity
- BUT will these increases be prolonged or planet-wide?
- ↑ CO₂ will also cause ↑ chance of forest fires + insect attacks + ↓ water availability

Technology will come to the Rescue

- Technology (like mirrors, fake volcanic gases etc) will save us.
- Expensive, international agreements + public confidence Required
- Can't completely predict the consequences of these actions

We Shouldn't Wreck the Economy

- If we don't know the extent of the warming why put resources toward the problem.
- We don't know that fixing this problem will be as costly as expected
- Green jobs could cause new jobs

Other Arguments

- "If they can't predict the weather for the month - How can they predict climate long term".
 - ↳ climate models look @ very Big Trends

Uncertainties of Global Climate Models

↳ What is a Global Climate Model?

These use quantitative methods to simulate the global interactions of the atmosphere, oceans, land surface + ice.

↳ Use to make predictions about future climate.

↳ What data is used? Where does it come from?

They do ① Direct measurements of temperatures + gases.

But doesn't help us with the Past.

② Proxy Indicators (indirect ways of measuring change)

↳ Tree Rings, Pollen, Coral Health, Fossils

↳ Ice Cores → bubbles of old gas, pollen, dust

↳ Geological Samples

↳ Historical → old journals + paintings etc.

↳ Uncertainties Exist w/ Models —

① It's all based on the data that gets fed in.

② Lots of feedback processes aren't fully understood

③ We don't know how human actions + behavior will change in the future.

↳ will impact # & type of pollutants

↳ will impact # & amount of Resources (like Forests)

↳ Scientists test models by checking them against the past Century & Seasonally.

What is Global Dimming?

- ↑ Pollution has had 2 impacts →
- ① Sun is reflected back to space
 - ② clouds formed around pollution are denser → Reflect more sunlight



1950's → 1980's



1980's → 2000's

Impacts of GLOBAL DIMMING →

- ① Shield oceans from full sun → disrupt H_2O cycle
- ② Hide impact of Global Warming (w/out dimming) global warming may well be much worse.

